

REMARKS

The claims have been amended in view of the Office action and in view of the remarks which follow, they are believed to be in condition for allowance.

Claim Rejections - 35 USC § 103

In part 2 of the Detailed Action, claims 1-4, 6-10, and 13-14, and 16-21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki (JP406325913A) in view of Kudo (US 2002/0036235). The Office Action stated as follows:

“Re claim 1, Tamaki teaches forming internal marking indicia on a marking location upon an exterior surface of a chip resistor for identification of the chip (FIG. 1-FIG. 3); and forming a non-black, optically transmissive encapsulating material over at least the marking location on the one exterior surface of the chip which non-black, optically transmissive material cannot be scraped off of the chip for prevention of replacement of the internal marking indicia by different markings, though protective layer 6.”

It is respectfully submitted that the translation of Tamaki is very difficult to read either because the translation was poor or the original document was poorly written. In addition, there are a number of places where words are omitted. Thus it believed that the translation cannot be relied upon as a document since it is of such poor quality that is incomprehensible in many places. Nevertheless, this response addresses statements found in the translation and in the abstract of the Japanese publication which is of higher quality and is believed to be more likely to be correct.

The Examiner is challenged to support the allegation that “label mark” on “a chip resistor” is to be used for identification of the chip. No chip is shown in FIGS. 1-3. The elements of FIGS. 1-3 listed in the translation are as follows:

- 1 Insulating Substrate
- 2 Resistor Layer
- 3 Label Mark Patterned Layer
- 3a Protection patterned layer
- 4 Resin Protective Layer
- 5 Electrode Layer
- 6 Photopolymer Layer
- 7 Trimming Slot

There is no mention or showing of a chip. Tamaki clearly relates to the identification of the chip resistor as contrasted with a chip. Thus the allegation that the purpose of the label on the chip resistor is used to identify a chip should be withdrawn as unsupportable.

The Examiner is also challenged to support the allegation that Tamaki that indicates that the protective layer 4 of Tamaki cannot be scraped from the finished product. It is respectfully submitted that all that is stated by Tamaki is that the layer 4 is a resin protective layer. It says nothing about whether the layer 4 is or is not removable.

It is respectfully submitted that the Office Action incorrectly alleges that photopolymer layer 6 is a protective layer present on the final product. Layer 6 is exposed to light, developed to leave a "Label Mark Patterned Layer 3" and then the layer 6 is removed as explained in the CONSTITUTION. See also paragraph [0021] of the translation of the Detailed Description of Tamaki. It appears that marking layer 3 is the material remains after it is created by the exposure of the photopolymer layer 6. The remainder of the photopolymer layer 6 which has not been transformed into marking layer 3 is all removed as is stated several times in Tamaki.

On the other hand it appears that the protective layer is the "semitransparent resin protective layer 4" as described in the CONSTITUTION as "A transparent or semitransparent resin protective layer 4 is provided in such a way as to cover the layer 3 and the exposed part of the layer 2". In the Detailed Description of Tamaki paragraph [0017] reads as follows:

"In drawing 1 , the label mark patterned layer 3 is formed on the resistor layer 2. Here, although prepared on the resistor layer 2, the above-mentioned label mark patterned layer 3 may be formed so that a part thru/or all of the label mark patterned layer 3 may start on the insulating substrate 1. And above-mentioned ***** 3 is covered by transparence thru/or the translucent resin protective layer 4 with the outcrop of the resistor layer 2."

It is respectfully submitted that there is nothing in Tamaki that indicates that the protective layer 4 cannot be scraped from the finished product. All that is stated is that the layer 4 is a "resin protective layer". Neither the Abstract nor the translation of Tamaki says anything about whether the layer 4 is or is not removable.

The Office Action stated further:

"Tamaki teaches a resistor and not specifically an IC chip."

It is repeated here that no chip is shown in FIGS. 1-3 of Tamaki and allegation "not specifically an IC chip" is misleading and should be withdrawn from future reference to Tamaki since it makes an unsupportable inference. Tamaki does not teach or suggest an IC chip in any way.

The Office Action stated further:

"It is well known and conventional in the art to label IC chips and such modification to apply the teachings of Tamaki to IC chips would have been well within the skill in the art, to provide a crisp label that is readily viewable and protected."

It is not seen that Tamaki suggests (1) the basic concept of forming internal marking indicia on a marking location upon an exterior surface of the chip for identification of the chip, or (2) forming an encapsulating material over at least the marking location on the one exterior surface of the resistor which material cannot be scraped off of the chip for prevention of replacement of the internal marking indicia by different markings.

The Office Action stated further:

"Re claim 2, Tamaki teaches the material is non-black optically transmissive to read the markings (paragraph [0017])."

The above statement is correct.

The Office Action stated further:

"Re claims 3 and 19, as taught above, Tamaki teaches the resin layer 4 is an encapsulant as it encapsulates the label (FIG 1). Further, the examiner notes that encapsulation is well known and conventional in the art and is obvious to sealing/protecting purposes, and can include environmental protection/handling."

It is respectfully submitted that the word encapsulate is not found in Tamaki. Nor is the concept of encapsulation found there. Moreover, the allegation that the layer 4 is a "resin layer" assumes that the adjectival use of the term resin refers to the composition of the layer 4 rather than the resin of the markings 3 which are being protected by the layer 4, whose composition is not described anywhere in Tamaki. The layer 4 is referred to as a "resin protective layer 4". It is clear that the protective layer 4 protects the resin of the label mark patterned layer 3 formed by the exposed portions of the photopolymer resin layer 6.

The composition or strength or adhesion of the resin protective layer 4 is not discussed by Tamaki. The only thing it states is that the layer 4 is formed over the resin of the label mark patterned layer 3. Thus it is believed to be clear that Tamaki does not teach an encapsulant and merely teaches a protective layer 4 which might be nothing more than a material such as an

adhesive tape or a frangible material which could be removed from the surface of the device. One can speculate endlessly as to what was the composition and what were the mechanical characteristics of the protective layer 4, but the Tamaki translation and abstract do not provide answers as to what those features might be.

The Office Action stated further:

"The Examiner notes that the recitation that the material is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform, which the protective layer of Tamaki does. Accordingly, 'adapted to protect. . .' does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

It is respectfully submitted that claims 3 and 19 have been amended to overcome the above ground of rejection.

"Re claim 4, the Examiner notes it is well within the skill in the art to replace the identifying indicia with barcodes, as barcodes are well known and conventional to represent information in a machine-readable way, and that barcodes are well known for being used on IC devices, and produced by photolithography."

It is respectfully submitted that the combination claimed is patentable over the reference for reasons stated above. Bar codes are not suggested by the reference.

The Office Action stated further:

"Further, the examiner notes that by the teachings of Tamaki can also broadly read up *[sic]* claim 4, as ambient/visible light directed onto the chip resistor enables one to read the indicia based on its reflection (how the light reflects off the indicia) presented to an individual."

It is respectfully submitted that while the reference does not address the subject matter of claim 4, the allegation has merit except for the fact that claim 4 is dependent upon a claim which is believed to distinguish patentably from the prior art cited. The Office Action stated further:

"Kudo teaches a photolithography step for producing indicia (consistent with Tamaki), where the indicia are a barcode that is disposed on an IC chip/wafer (paragraph [0063], for example). Re claim 4, as discussed above, Kudo teaches the use of a barcode, and accordingly, it is well known that barcodes are read by directing light onto the indicia and reading the reflections. Re claims 6 and 16, the epoxy resins are a well known and conventional commercially available resins used for covering chips (Lee US 6,288,335 and Ikeya et al. US 4,719,502), and prevents remarking. Re claims 7,8,17,18,20, and 21 it has been discussed above that barcodes/indicia are read with electromagnetic radiation reflecting off the indicia, as is conventional and well known. Re claims 7 and 17, the protective layer/cover/encapsulant was discussed above, and prevents remarking chip/wafer/silicon. Re claims 9 and 10, the limitations have been discussed above re claim 1. It is well known and conventional that ICs have an electrical contact site on a surface, and it has been taught above that Tamaki covers the exterior

of the chip and prevents replacement of the internal marking indicia and prevents remarking the internal indicia on the exterior through the protective layer, as discussed above. Re claim 10, it has been discussed above that it is well known to read indicia using electromagnetic radiation impinging on the indicia. Re claims 13-14, the limitations have been discussed above re claim 1 and 2."

"At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Tamaki with those of Kudo."

"One would have been motivated to do this in order to provide identification of circuit elements, as is well known and conventional in the art."

"Re claims 8, 10, 18,20, and 21, the Examiner notes that the prior art of Tamaki teaches covering an indicia on a resistor chip, and reading the indicia through the label. The Examiner asserts that modifying the indicia to include barcodes, produced as per the teachings of Kudo, would have been obvious to an examiner of ordinary skill in the art as an alternative means to represent data, in a way that is common and well known (machine readable). The examiner believes that as the prior art of Tamaki teaches crisp and easily readable indicia (produced by conventional photolithography methods) read through the cover layer, it would produce expected results to replace the indicia with barcode indicia produced via photolithography and still viewable through the layer, as such a process produces visible and clear indicia. Such modification would be obvious to allow machine reading of data, or the storage of more information."

In part 3 of the Detailed Action, claims 5, 15, 22, and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki/Kudo, further in view of Ikeya et al. (US 4,719,502).

The Office Action stated as follows:

"The teachings of Tamaki/Kudo have been discussed above."

"Tamaki/Kudo is silent to colored material."

"Ikeya et al. teaches the use of a colored resin for contrast (col 3, lines 65+). As taught above, the indicia is viewable through the layer, and the layer prevents replacing or remarking of the indicia. It is known that IC chips have surfaces and an electrical contact site. Re claim 23, it has been discussed above that electromagnetic radiation is used to read the indicia. At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Tamaki/Kudo with those of Ikeya et al. One would have been motivated to do this for contrast, to adjust readability. Re claim 23, the Examiner notes that the prior art of Tamaki teaches covering an indicia on a resistor chip, and reading the indicia through the label. The Examiner asserts that modifying the indicia to include barcodes, produced as per the teachings of Kudo, would have been obvious to an examiner of ordinary skill in the art as an alternative means to represent data, in a way that is common and well known (machine readable). The examiner believes that as the prior art of Tamaki teaches crisp and easily readable indicia (produced by conventional photolithography methods) read through the cover layer, it would produce expected results to replace the indicia with barcode indicia produced via photolithography and still viewable through the layer, as such a process produces visible and clear indicia. Such modification would be obvious to allow machine reading of data, or the storage of more information."

It is believed that our responses above overcome the above arguments as to the claims 5, 15, 22 and 23 and those arguments are incorporated here by reference.

In part 4 of the Detailed Action, claims 12 and 25 were rejected under 35 U.S.C. 103(a) as

being unpatentable over Tamaki/Kudo/Ikeya et al., further in view of Jeng et al. (cited in previous action).

The Office Action stated as follows:

"The teachings of Tamaki/Kudo/Ikeya et al. have been discussed above. It has been discussed above that the layer prevents replacement of the markings, and cannot be scraped off (doing so would compromise integrity)."

"Tamaki/Kudo/Ikeya teach the use of a colored resin layer but are silent to the colored resin together with the indicia representing identification of the chip."

"Jeng et al. teaches using color as an identifier for a chip (as cited in prior action)."

"At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Tamaki/Kudo/Ikeya et al. with those of Jeng."

"One would have been motivated to do this in order to also use the color of the resin layer as a further identifier, since color is used as an identifier by Jeng, and therefore one would be motivated to combine the teachings to provide further identification means."

It is believed that our responses above overcome the above arguments as to the dependent claims 12 and 25 and those arguments are incorporated here by reference.

Recent cases, such as *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) and *Ruiz v. A.B. Chance Co.*, 234 F.3d 654; 57 U.S.P.Q. 2d 1161 (Fed. Cir. 2000) require a "motivation" before references can be combined. Since several references have been glued together, i.e. combined with an implicit teaching, the Examiner is asked to show the "motivation to combine" them with respect to the rejected claims.


In accordance with *Graham v. John Deere*, the issues to be addressed by the USPTO are as follows:

- 1) Please state the reason, suggestion, or motivation present in the prior art, in the knowledge of those of ordinary skill in the art to combine laser marking with covering the semiconductor chips with a non-black and/or optically transmissive encapsulating material over at least the marking location on the one exterior surface of the chip which non-black and/or optically transmissive material cannot be scraped off of the chip for prevention of replacement of the internal marking indicia by different markings. It is respectfully submitted that none of the prior art of record makes any statements which would support such a conclusion.
- 2) the differences between the claimed invention and the prior art are that the prior art references even when combined do not suggest as follows:

- (a) covering the semiconductor chips with an optically transmissive/transparent material over indicia which identify the chips;
- (b) material cannot be scraped off of the chip; and
- (c) prevention of replacement of the internal marking indicia by different markings.
- 3) The secondary consideration that there has been a "failure of others to suggest the subject matter claimed" relating to prevention of scraping off of indicia is probative in the obviousness analysis under *Graham v. John Deere*.

In view of the amendments and the above remarks favorable action including allowance of the claims and the application as a whole are respectfully solicited.

Respectfully submitted,



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